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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/689,942

10/21/2003

Glenn Edward Jones

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4029

7590 12/20/2006  
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EXAMINER

SANDERS, KRIELLION ANTIONETTE

ART UNIT

PAPER NUMBER

1714

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/20/2006

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/689,942

Applicant(s)

JONES ET AL.

Examiner

Kriellion A. Sanders

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

Art Unit: 1714

### DETAILED ACTION

Applicant's invention pertains to a composition comprising:

1. An elastomer comprising C4-C7 isoolefin derived units
2. A processing oil such as paraffinic, aromatic, naphthenic and polybutene processing oils
3. A material selected from:
  - i. A hydrocarbon resin grafted with a graft monomer such as maleic anhydride
  - ii. Oligomers having
    1. cyclopentadiene
    2. substituted cyclopentadiene
    3. C5 monomers and/or C9 monomers
  - iii. Combinations of i and ii.

The composition may additionally comprise a filler, such as carbon black, silicates and clays.

The composition may additionally comprise a secondary rubber.

The composition may additionally comprise a sulfur, peroxide, metal oxide, metal oxide complex, fatty acid, and/or diamine curing agent.

Claims 21-22 are directed to compositions wherein the elastomer is cured.

Claims 23-24 pertain to articles made from the above compositions such as components for tires.

Claims 25-26 relate to a method for producing an elastomeric air barrier.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1714

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Costemalle et al, US Patent No. 5,631,316.

The reference is relied upon for reasons of record. Costemalle et al discloses that butyl rubber compositions, (i.e., elastomeric copolymers of isobutylene with up to about 10 wt % of isoprene), possess excellent resistance to air permeability that render them suitable for use as tire inner tubes or inner-liner materials. The inner-liner is composed of a relatively thin sheet of the elastomer formulated with compounding additives and a curing system, which is laminated to the inner surface of a tire carcass layer of an uncured tire as the tire is formed on a tire building drum. Final cure of the composite structure produces a tire having a cured inner-liner adhered to the carcass which serves as a barrier to the passage of compressed air through the tire.

These compositions comprise a mixture of:

(i) from about 40 to 80 weight percent of an elastomeric random interpolymers comprising at least about 80 wt % of a polymerized isomonoolefin containing from 4 to 7 carbon atoms and from about 0.05 up to about 20 wt % of copolymerized aromatic monomer. Most useful of such material are elastomeric copolymers of isobutylene and para-methylstyrene containing from about 0.5 to about 20 mole % para-methylstyrene wherein up to about 60 mole % of the methyl substituent groups present on the benzyl ring contain a bromine or chlorine atom, preferably a bromine atom.

ii) from about 20 to about 45 wt % of a filler,

iii) from 0 to about 25 wt % of a plasticizer oil; and

Art Unit: 1714

iv) at least 1 wt % of a curing system for said interpolymers. The rubber material may be formulated with a curative system such as zinc oxide and/or sulfur curing agents.

The quantity of peroxide generally ranges from about 1 to about 10% by weight, preferably from about 1.5 to 6% by weight per hundred parts by weight of curable polymer present in the composition.

Suitable filler materials include carbon black such as channel black, furnace black, thermal black, acetylene black, lamp black and the like. The filler may also include non-reinforcing materials such as silica, clay, calcium carbonate, talc, titanium dioxide and the like. The filler is normally present in the innerliner at a level of from about 20 to about 45% by weight of the total composition, more preferably from about 25 to 40% by weight.

Suitable plasticizer oils include aliphatic acid esters or hydrocarbon plasticizer oils such as paraffinic or naphthenic petroleum oils. The preferred plasticizer oil is a paraffinic petroleum oil. Suitable hydrocarbon plasticizer oils include oils having the following general characteristics.

- ii) from about 20 to about 45 wt % of a filler,
- iii) from 0 to about 25 wt % of a plasticizer oil; and
- iv) at least 1 wt % of a curing system for said interpolymers.

The invention also provides a method of fabricating a pneumatic tire comprising forming the composition described above into an innerliner sheet material, exposing the sheet material to a source of high energy radiation sufficient to partially cure the sheet material, contacting the partially cured innerliner with a tire carcass element containing a more highly unsaturated rubber

to form a laminate structure and heating the resulting structure at a temperature of about 100.degree. C. to 250 degree. C., for a period of time sufficient to vulcanize the structure.

***Response to Arguments***

Applicant's arguments filed 10/11/2006 have been fully considered but they are not persuasive. Applicant argues that Costemalle et al does not disclose the graft hydrocarbon resin or grafted oligomer required by every one of the present claims. This argument has not been found to be persuasive because patentee does suggest and contemplate the use of a hydrocarbon resin grafted with a graft monomer or an oligomer . See col. 3, line 17 through col. 4, line 51. This grafted component would then correspond to applicant's component c (1). Patentee provides for the use of additional rubbers such as polyisoprene that correspond to applicant's component (a). The use of graft polymers is obvious in view of Costemalle et al.

1. Claims 1- 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al, US Patent No. 5621045.
2. Patel et al discloses compositions comprising semicrystalline polyolefins and blends of a crosslinked rubber. One rubber is composed of isomonoolefins and optionally conjugated dienes and alkylstyrene. The compositions are crosslinked with conventional crosslinking agents to form graft polymers. Processing oils fillers such as carbon black and conventional additives are also included in these compositions. The compositions are used to make automobile parts such as various covering materials. See col. 2, line 67 through col. 6, line 50 and col. 7, lines 52-57.
3. Applicant's arguments filed 10/11/06 have been fully considered but they are not persuasive. Applicant argues that Patel et al teach crosslinked rather than graft polymers.

However, upon review of Patel et al, it is clear that Patel et al suggest the use of graft polymers. See col. 4, lines 31-61, wherein the following statement is made:

Some rubbers such as butadiene-acrylonitrile copolymers (nitrile rubber) have very limited compatibility with copolymers from C.sub.4 to C.sub.7 isomonoolefins (such as isobutylene). This incompatibility can increase the size of dispersed rubber particles and may inhibit development of optimum properties. One group of compatibilizer molecules which reduce the domain size of the dispersed rubber phase are block or graft copolymers that have one or more blocks (e.g. segments) which are compatible with olefin polymers and one or more blocks that are compatible with nitrile rubber. These compatibilizers are disclosed in detail in U.S. Pat. No. 4,299,931 which is hereby incorporated by reference. Compatibilizers as described above are desirably used in amounts from 0.1 to 25 parts by weight per one hundred parts of total rubbers. Examples of blocks compatible with olefins include polybutadiene, polyisoprene, polyalkenamer etc. Examples of blocks compatible with nitrile rubber include epichlorohydrin polymer, polyamide, polyamine, acrylic polymer, polyester, nitrile rubber itself, etc.

The use of graft polymers is obvious in view of Patel et al.

#### ***Information Disclosure Statement***

4. Prior art form 1449 filed 10/11/06 has been fully considered.

#### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

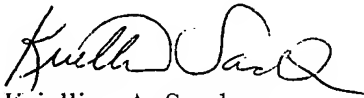
Art Unit: 1714

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kriellion A. Sanders whose telephone number is 571-272-1122. The examiner can normally be reached on Monday through Thursday 6:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kriellion A. Sanders  
Primary Examiner  
Art Unit 1714

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